

Prof. Rothrock read a paper entitled: "The microscopic examination of timber with regard to its strength; a contribution from the Eli K. Price Botanical Laboratory of the University of Pennsylvania, by Frank M. Day." Remarks were made on the interesting subject of the paper by Dr. Brinton, Mr. Ingham and Mr. Price, and the Treasurer was authorized to pay for necessary illustrations. (See page 333.)

Mr. Phillips communicated "A note respecting the correct name of the last letter of the English Alphabet?"

Mr. Lesley exhibited a small copper-plate map of Pennsylvania which he had colored geologically according to the system of Major J. W. Powell, Director of the United States Geological Survey, as a contribution to a general map of the United States now in preparation at Washington for illustrating the coloration adopted by Major Powell, and intended for presentation at the Congress of Geologists to meet at Berlin in 1884.

Dr. Allen read a paper "On a case of human congenital malformation," and exhibited two photographic views of the subject.

The reading of pending nominations was postponed.

Mr. Phillips reported that the Curators were consulting with Mr. Rothermel respecting the oil paintings of the Society.

The Report of the Finance Committee was received.

The annual appropriations for 1884 recommended therein were passed.

And the meeting was adjourned.

A Note respecting the Correct Name of the Last Letter of the English Alphabet. By Henry Phillips, Jr.

(Read before the American Philosophical Society, December 21, 1883.)

A dislike of what seemed to be a growing evil, one which had greatly increased within the past twenty years, the misnomer of the last letter of the English alphabet, by which it was called *zee* instead of *zed*, led me to investigate so far as the material was accessible to me into the origin of this usage, and into the authorities by which it was countenanced. I have

accordingly consulted various English Dictionaries, of which I subjoin a list, from the year 1656 to the present time, with the following results, viz. :

1. That the name *zee* for *zed* (or *izzard*,* as the letter was formerly termed), seems to have made its appearance in the first edition of Webster's Dictionary of the English Language, published in 1828. But in the editions of that work, published respectively in 1860, 1864 and 1869, and possibly earlier, *zed* is given as the *English* name of this letter, while *zee* is the American. It is noteworthy that Webster seems to have no authority for his change of nomenclature, nor can I find in his published writings any reason therefor, unless it be perhaps that some petty local peculiarity in the small country towns of New England led him to believe that no other pronunciation could be a correct one. In a Dictionary of the English Language, "by an American Gentleman," published in Burlington, New Jersey, in 1813, the name is given as *zed*.

As conclusive of former usage, the passage in *Lear*, Act II, Scene 2, may be quoted :

"Oh thou Zed! thou unnecessary letter."

I have not been able to find in Ben. Johnson's English Grammar any usage bearing on this point.

2. The analogy with the similar letter *z* of the German alphabet, of which the name is *tsett*, certainly deserves respect.

Freeman, in his impressions of the United States (p. 84), writes : "I think I see another instance of the schoolmaster in the name which in some parts of America is given to the last letter of the alphabet. This in New England is always *zee*; in the South, it is *zed*, while Pennsylvania seems to halt between the two opinions. Now *Zed* is a very strange name. * * * Does it come from the old form *izzard* * * * which I was delighted to find remembered in America. * * * But *zee* is clearly a schoolmaster's desire to get rid of the strange sounding *zed*, and to make *z* follow the analogy of (some) other letters. But this analogy is wrong; *z* ought not to follow the analogy of *b*, *d*, *t*, but *l*, *m*, *n*, *r*, and above all of its brother *s*, so that if we are not to have *zed*, the name should clearly be *ez*."

But there seems no necessity or reason why any change whatever should take place in this respect.

3. From the forty-seven dictionaries which I have consulted I obtain the following result :

Name of the letter given as <i>zed</i>	24
" given as <i>zee</i> (none earlier than 1828, and all American).....	3
" of letter not given at all.....	20
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	47

* Nares' Orthoepy, i, 138, London, 1792, speaks of the letter as *izzard*; than which, however, he considers that the name *zad* would be "more elegant and proper."

LIST OF DICTIONARIES CONSULTED.

1656. T. B.,	London,	not given.
1678. Phillips, World of Words,	"	not given.
1691. Sewell, Dutch and English,		not given.
1720. Phillips,		not given.
1736. Bailey,	London,	not given.
1743. Junius,	Oxford,	not given.
1755. Johnson,	London,	zed.
1757. Serenius, English and Swedish,	Nykoping,	zed.
1771. Skinner,	London,	not given.
1775. Ash,	"	not given.
1780. Sheridan,	"	not given.
1782. Cox,	"	zed.
1783. Kendrick,	"	not given.
1783. Barclay,	"	not given.
1784. Nare's Orthoepey,	"	zed.
1785. Johnson,	Dublin,	not given.
1789. Sheridan,	Philadelphia,	not given.
1795. Ash,	London,	zed.
1797. Walker,	"	zed.
1804. Jones,	"	zed.
1805. Perry,	"	not given.
1806. Johnson,	"	zed.
1813. Barclay,	Bungay,	not given.
1813. "An American Gentleman,"	Burlington, N. J.,	zed.
1818. Johnson,	Philadelphia,	zed.
1819. Johnson.	"	zed.
1824. Walker's Rhyming Dictionary,	London,	zed.
1828. Webster, first edition.		zee.
1835. Booth,	London.	not given.
1835. French, German and English,	Leipzig,	zed.
1841. Fleming and Tibbin, French and English,		zed.
1845. Knowles,	London,	not given.
1846. Bolles, Phonographic Pronouncing,	New London,	zee.
1851. Richardson.	Philadelphia,	not given.
1853. Todd, Johnson and Walker,	"	zed.
1853. Millhouse, Italian and English,	Milan,	zed.
1856. Ogilvie's Imperial,	London,	zed.
1857. Nare's Glossary,	"	zed.
1860. Worcester,	England, zed; in the U. S. zee.	
1860. Johnson,	London (Bohn),	zed.
1862. Reiff, Russian, French, German and English,		zed.
1863. Wilson, French and English,	"	zed.
1864. Webster,	Springfield,	zed (also izzard).
1866. Grieb, German and English,	Philadelphia,	zed.
1869. Webster.	Springfield,	zed.
1880. Webster.	"	not given.
1882. Skeat,	Oxford,	not given.

This brief note is simply intended as a suggestion to call the matter to the attention of those better qualified to consider it than myself.

NOTE.—Since the foregoing went to press I have found in reading Taylor's History of the Alphabet (London, 1883), the following matter bearing upon this subject, and confirmatory of my views:

"The name *zed* is a survival of the early *tsadde*. (Vol. II, p. 137). * * *

Z was the last introduced of the letters of the Roman alphabet. * * * It crept into English during the fifteenth century from the French, and in use is now pretty nearly restricted to foreign loan-words * * * *çedilla* means *little zed*: *zediglia* is the diminutive for *zeticula*." p. 138.

The Microscopic Examination of Timber with regard to its Strength. A Contribution from the Eli K. Price Botanical Laboratory of the University of Pennsylvania. By Frank M. Day.

(Read before the American Philosophical Society, December 21, 1883.)

The valuable paper of Dr. J. T. Rothrock upon "Some Microscopic Distinctions between Good and Bad Timber of the Same Species," recently read before the American Philosophical Society, has opened a broad field for original investigation. The question there suggested as to the possibility of approximately determining the strength of timber by microscopic examination (involving as it does the question of the "differences in the strength of wood due to the molecular differences in the structure of the fibre") is one that can be answered only after the most extended and carefully conducted investigation.

As long as we confine ourselves to the examination of various specimens of the same species the task of distinguishing the good pieces from the bad, and of roughly predicting the relative strains which they will resist, is comparatively easy.*

Plate I showing transverse sections of two pieces of Rock Elm (*Ulmus racemosa* Thomas), furnishes illustrations of the general differences between good and bad wood of the same species. The upper figure is a section of the wood used by a well-known firm in their highest grade of hubs; the lower is a section of wood which they declare to be practically worthless. It is evident from a glance at these drawings that the good differs from the bad, in 1st, The much smaller area occupied by ducts; 2d, The smaller bore and consequently thicker walls of the woody fibres; 3d, The more compact arrangement of the woody fibres, giving them a polygonal rather than a circular outline; 4th, The much greater annual growth. These are the elements which it is but reasonable to suppose would give strength to the wood. They are further those which are found to do so in the great majority of cases.

The strength of the cellulose of which the wood is composed, is, in various species and under various conditions, by no means the same. For example, Buttonwood (*Platanus occidentalis* L.) rapidly loses the greater part of its strength, by a natural process which the woodsmen call "doating," the only indication of which is a bleaching of the tissues. Hence any statements as to the strength of timber, made from an examination of the structure alone are open to question.

* This it will be urged can be done by the practical eye without the aid of the microscope, but it must be remembered that the entire investigation of the subject is, at its present stage, of theoretical rather than practical interest.